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## NUTRITION IN WASTING DISEASES OF CHILDREN AND ADULTS.

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OF recent years there has been a marked tendency to lessen the use of drugs in the treatment of not a few diseases. As we all know, many complaints formerly treated by physic are now forthwith handed over to the operating surgeon. In a host of other maladies the medical man nowadays turns for aid to physical methods, such as the "high frequency" electrical current or hot air baths, or to the old-fashioned remedies of good food, travel, exercise, pure air, and sea-bathing. In the present article the chief point that will be dealt with is that of food-nutrition in relation to wasting disease.

The subject was suggested to the writer by various medical friends, who reported excellent results in such cases from the use of a particular food, Sanatogen. On inquiry, I found that the nutrient product in question had, during the past five years or so, been extensively used in Germany, where it had been favourably spoken of by many eminent men, including Professors Ewald, Tobold, Neisser, Walther, von Schroetter, Duhrssen and others. Their results, published in various medical journals, were so remarkable as to suggest a kind of specific nutrient value in this new food. On further reference I found that Sanatogen was being advertised in the *Lancet*, *British Medical Journal*, *Medical Press and Circular*, and other leading professional journals. There could be no doubt, therefore, as to its acceptance and standing in the medical world. At the same time it seemed desirable to learn more as to its qualities by a systematic clinical investigation. Accordingly, it was determined to put the matter to a careful trial. This has been done in a series of selected cases, some of them taken from private and others from hospital practice, in which all details have been accurately noted. My results, briefly stated, have confirmed those of the above mentioned Continental observers. They have been sufficiently striking to warrant the belief that in Sanatogen we have a nutrient food of more or less specific absorbability into the system, and hence of considerable nutritive value in all cases of acute or chronic tissue starvation.

The composition of Sanatogen is stated to be 95 per cent. of pure casein (milk albumin) with 5 per cent. of glycerophosphate of sodium. Many foods have an apparently equal nutritive value, but every medical practitioner knows how difficult it is to nourish a patient suffering from disease-maciation. The wasted body remains wasted in spite of abundant feeding with eggs, milk, peptonised foods, meat extracts, and the round of

invalid diet. Do we not all recognise the fact that the starving tissues are fed, not by the food swallowed by the patient, but by the amount of nutrient matter absorbed by the gastric and intestinal mucous membrane? If we could ensure the absorption of nutriment into the blood, the problem of nutrition in disease would be reduced to a matter of mere chemistry and mechanical feeding. Failing that somewhat remote contingency, it is conceivable that some way may be found of preparing a foodstuff as to render it readily absorbable in the alimentary canal, no matter how disturbed and weakened the digestive functions may have become. Judging from clinical results, Sanatogen appears in many cases to possess some such power of ready absorbability, without which the richest foodstuff represents simply so much foreign matter in the stomach and intestines. My own experiences are here recorded as a simple extension and confirmation of the remarkable statements of the distinguished Continental authorities already cited. It is to be hoped that medical men here in the United Kingdom will ascertain for themselves the value of this dietetic remedy in wasting diseases, in convalescence, and, indeed, wherever there is evidence of general malnutrition.

A certain number of the cases experimented upon were those of wasting children, or "wasters," as they are technically called. One of the greatest difficulties with which the physician can be faced, either in hospital or in private practice, is to restore the general nutrition of these little patients. In spite of the utmost care in the regulation of diet the mortality among these children is extremely high. The wasting is obviously a sign of defective nutrition, and the loss of body-weight persists regardless of the quantity or quality of the food introduced into the stomach.

The explanation is probably that nutrient matter is not absorbed because of some atrophy or imperfect development of the structure or functions of the glandular and absorptive apparatus of the stomach and intestines. Wasting from insufficient food may be taken as the simplest form of infantile atrophy. General tissue starvation may also be due to the taint of tubercle, especially in the form of *tubercles mesenterica* or of syphilis. Rickets is another predisposing cause, although, happily, it is becoming much less frequent nowadays. Other causes, again, are "fevers" and various invasions by pathogenic organisms.

The prominent symptoms of almost all forms of infantile wasting are, diarrhoea, vomiting and anæmia. The chief point about the *wasting* is its persistency—repeated weighing reveals no increase in weight. The *diarrhoea* is a constant symptom, with stools that are as a rule green and offensive, but at times they are yellow with greenish streaks. The *vomiting* is persistent and

urgent, and occurs immediately after food of any kind whatever. The *anæmia* is characterised by erythrocytes of not more than two millions to the cubic millimetre, while the *leucocytes* are increased to, say, 12,000, and the hæmoglobin value may be anything between 36 and 64 per cent. These patients are apt to get pneumonia, usually of the broncho-pneumonic but sometimes of the lobar variety.

In looking for the cause of infantile wasting with the above train of symptoms, the physician will naturally note any past or present evidence of "snuffles," rash, delayed closing of fontanelles, or of any of the various bony or glandular changes associated with tubercle, rickets, or syphilis. Whether specific drugs be or be not required, it goes without saying that dietetic treatment must always be of first importance in such conditions. My own experience of Sanatogen, as shown in the appended cases, is that it stays the diarrhœa—ten or twelve motions a day are thereby reduced to one or two; it stops the vomiting, and it improves general conditions and causes the patient to put on flesh. Finally, it brings about some amount of improvement in the coloured corpuscles, which increase at the rate of about 10,000 per c.mm. daily. These results, due, as I believe they are, to such simple means, are worthy of the careful attention of every medical man who is called upon to deal with wasting diseases.

*Case I.*—A. B., male child, æt. one month; brought to hospital with a history of diarrhœa, vomiting and wasting from birth. There were usually from eight to ten green, slimy and offensive motions in the twenty-four hours. The child had "snuffles," and was covered with a syphilitic rash all over the body. It was breast-fed, but a little cow's milk diluted with one-third lime water had been given from time to time. The weight was only  $4\frac{1}{2}$  pounds. Treatment included grey powder, inunctions of mercurial ointment, and the administration of subnitrate of bismuth, both in small and in large doses. The incessant vomiting, however, went on unchecked, and, humanly speaking, there seemed to be not the least chance of recovery. At this point all medicinal treatment was discontinued, and the infant ordered a teaspoonful of Sanatogen in a mixture of milk and cream every four hours. This combination was taken well, and in less than twenty-four hours the vomiting and diarrhœa had ceased. The child gained half a pound in weight in a week, and made a good recovery.

The foregoing case speaks for itself. It has an extremely suggestive value as regards the relation of general nutrition to the curative action of specific drugs upon the body. The following case illustrates the use of Sanatogen in stopping diarrhœa and vomiting in a wasted child, where there was no evidence of any specific disease.

*Case II.*—C. D., a female child, æt. four months; brought with a history of almost continuous diarrhœa since birth. There were many motions daily, of a yellow colour streaked with green, and very offensive. Milk, cream, and many kinds of "infant foods" had been tried in vain; nearly all of them excited vomiting. The child weighed only six pounds, was thin and pale, with an irregular temperature ranging between 98° and 101°. There was no evidence of syphilis nor of tubercle. The red blood corpuscles numbered 4,150,000, the leucocytes 11,000, whilst the

hæmoglobin value was 61 per cent. Sanatogen given in two-drachm doses every four hours promptly stopped the diarrhœa and lessened the vomiting. In four days the temperature had fallen to normal, and at the end of a week the red cells had risen to 4,230,000 and hæmoglobin value to 62.5 per cent. The treatment was continued for some time, and careful weighing showed that the child gained weight at the rate of about a quarter of a pound a week.

The following cases show the value of this new form of food nutrition in various wasting conditions:—

*Case III.*—F. F., female, single, æt. 18, waitress in a London tea-shop; complaining of palpitation and shortness of breath. For three years she had suffered periodically from attacks of anæmia and amenorrhœa. She was liable to fainting fits, especially when actively engaged in a hot room. The conjunctivæ and the mucous membrane of the lips were pale. Her red blood corpuscles numbered 3,500,000 per c.mm., with a hæmoglobin value of 42 per cent. She lived chiefly on tea and bread and butter, and it was only with much difficulty she was able to continue her employment. After relief of constipation she was ordered Sanatogen in milk as a staple article of dietary. This she took without difficulty, and in a fortnight her red cells improved at the rate of 10,000 a day. Her symptoms gradually subsided, and at the end of a month she was able to take her meals with a good appetite, and was free from all appearances of anæmia.

*Case IV.*—G. H., a married woman, æt. 36, suffering from melancholia. She had sustained a severe shock from the sudden loss of her favourite child. She took to her bed and practically refused all food with the exception of beef-tea, milk and jelly. She lost weight rapidly, and suffered from profuse sweating at night. No sign of tubercle, however, could be detected in the lungs or elsewhere. She was anæmic, and her red corpuscles numbered only 3,800,000 per c.mm., with hæmoglobin 48 per cent. She was placed on Sanatogen, and at once began to improve. Her mental equilibrium was restored, she developed fresh energy, and at the end of a fortnight was able to resume her home duties. Her red cells had by that time risen to 4,000,000 per c.mm. and the hæmoglobin to 52 per cent. The improvement in this case was most striking and suggestive.

*Case V.*—T. J., an elderly widow lady, had suffered for many years from chronic bronchitis and emphysema. Of late she had developed glycosuria; the amount of urine passed in the day measuring on an average six pints, with a specific gravity of 1025. She lost little flesh and there were no other symptoms of diabetes. She had been carefully dieted by a physician, under whose direction all sugar and starch were excluded. Unfortunately, from the state of her teeth she was unable to masticate the various substitutes for bread which were from time to time suggested. Her heart was dilated, and she suffered much from dyspnœa on exertion, even when the latter was slight, such as going slowly upstairs. Flatulence was another great trouble, and eructations were almost incessant. The dietary was relaxed, and she was placed on one-ounce doses of Sanatogen in milk every four hours. In less than a week all her subjective



symptoms had disappeared, and the urine was free from sugar. Her powers of walking gradually returned, and in a month she was able to walk half a mile on level ground twice a day without much inconvenience.

*Case VI.*—K. L., a girl, æt. 3, brought to me by her mother for advice on account of "weakness." Family history good; child fairly well nourished; had enteritis of four weeks' duration when one month old, and bronchitis lasting three weeks with two convulsions at the age of one year. Has always been "delicate" and nervous; cannot walk far, as she complains of pain in her knees. Teeth good; moderate "knock-knee"; height  $37\frac{1}{2}$  inches; weight  $32\frac{1}{2}$  pounds (fifteen months previously 32 pounds). No organic or constitutional disease was found. The only suspicious point was the almost stationary weight, which in an ordinary healthy child of her age should clearly have increased many pounds in the course of fifteen months. She was ordered Sanatogen, one teaspoonful twice daily, and at once began to put on weight at an average of half a pound weekly. The error of nutrition, in this instance of obscure origin, appears to have been effectually remedied by a simple dietetic treatment.

*Case VII.*—M. N., a gentleman, of middle age, who had suffered for eleven months from epithelioma of the soft palate. About the second week in September, 1904, he had reached an extreme stage of emaciation, and had taken for several weeks to his bed, from which he had before that time been carried downstairs in a chair. Sanatogen was ordered in teaspoonful doses twice daily in milk. A marked improvement in the general condition rapidly followed. The hollows in the cheeks and temples became much less visible, and after a time the patient actually walked downstairs, and interested himself in painting picture-frames and so on. More striking still was the fact that he several times asked for and ate a boiled egg, although he had taken nothing but "spoon" diet for months previously. In this case Sanatogen produced a distinctly favourable effect on the general nutrition and condition. The improvement was far more marked than happens in the occasional "turn for the better" met with in most cases of malignant disease, and lasted for many weeks.

Although I have had no experience personally of the use of Sanatogen in convalescence from enteric fever, a medical friend has found it invaluable under those circumstances. Anything that can help one to tide over the anxious period of typhoid convalescence will be sure of a warm welcome by medical men. For many years it was the invariable rule both in hospital and in private practice not to give any food beyond milk, cream, and beef-tea until the temperature had been normal for ten days. During that time of probation patients craved for food incessantly, and suffered much distress from restless nights and from the pangs of hunger. This rule was gradually relaxed; first coffee and then mashed bananas and cream were allowed, and the time of probation shortened. It is now admitted by many good authorities that solid food may be given in milk after the fourth day of normal temperature with absolute safety. The comfort of the patient is thereby much increased, and his convalescence shortened. In this and in the

other conditions above mentioned, Sanatogen deserves a careful trial by medical practitioners, as a readily assimilable form of semi-solid food. It is readily prepared, moreover, a point of some importance in the sickroom.

On the Continent, Professor Ewald (*a*) has spoken warmly of the value of Sanatogen in enteric fever. He administered that food to a patient on the fifth day after admission to hospital early in the third week of an attack of typhoid fever. As the result of experimental investigations he concluded that Sanatogen is valuable, on account of its ready absorbability, in all cases of physical weakness, "as well as in the acute stages of all those maladies which are accompanied by high rise of temperature and particularly in enteric fever." Dr. Eduard Rybiczka (*b*) advocates the use of the same preparation in convalescence from the malady in question.

*Case VIII.*—A lady, æt. 50, single, complaining of stiff joints and wasting. Her mother died of phthisis, also a brother. When young she had an attack of St. Vitus' dance, after falling downstairs. Between 20 and 25 she suffered from chronic cough, and was treated for incipient consumption. General health had been good ever since, and she had been of active habits, and took a great deal of outdoor exercise. Seven or eight years ago her hands began to get stiff and painful, and later the feet, elbows and knees were involved. The hands showed the typical deformities of advanced osteo-arthritis; the fingers were enlarged at the joints, and those of the right deflected outwards and clawed; large swellings, both bony and bursal, were present on the backs of hands and wrists. The right hand was worse, as the fingers were partly clawed into the palm and the wrist also partly locked. There were tender spots on the hands, but for the most part tenderness and pain were absent. The feet, elbows and knees were more or less involved; the elbows could not be straightened, and there was a great deal of "egg-shell" deposit about the knees, especially the right. There had recently been a considerable loss of weight, although the appetite remained good. A careful search failed to reveal tubercle in the lungs or elsewhere, and no disease of heart, kidneys, or other organs accounted for the loss of weight. This patient was treated by the super-heated air method, introduced and perfected by the late Mr. Tallerman. The joints soon gained in power of movement, and the joint swellings diminished rapidly in size. At the same time the general health improved greatly. Sanatogen was ordered at the outset in teaspoonful doses twice daily. The patient was first seen on October 11th, when she weighed 6st. 9lbs. Sanatogen was first given on the 14th in teaspoonful doses thrice daily, increased gradually to two teaspoonfuls. The weight began to increase at once, and on October 28th the weight was 6st. 11lbs.

This case shows the value of a readily absorbable food in the perverted nutrition of a general disease like osteo-arthritis. The great loss of weight is met with occasionally in cases of rheumatoid arthritis in which there is no gross organic disease. A well-known physician has recently published several cases of extreme wasting in

(*a*) *Zeitschrift für diätetische und physikalische Therapie*. Von Leyden. Article by Dr. O. A. Ewald.  
(*b*) *Wiener klinische Wochenschrift*, 1900. Vol ix.



(D. Wa'sh.)

RADIOGRAM OF HAND IN CHRONIC OSTEO-  
ARTHRITIS.

connection with pulmonary osteo-arthropathy. In my experiences the joint changes in these cases are the essential feature, and the thoracic trouble an accidental complication of more or less severity. For some years past I have had a large experience of osteo-arthritic cases at the Tallerman Free Institute. Scores of chronic osteo-arthritic or rheumatoid conditions were seen ; a fair number, perhaps 25 per cent. of them, showed marked wasting, but I can recall only two or three in which there was serious advanced disease of heart or lungs. At the same time slight valvular murmurs were common enough, as might be expected from the frequent history of rheumatic fever in osteo-arthritic cases.

It may be of interest to insert here a radiogram which I have taken of the left hand of this patient. It shows in various joints—as about the phalanges and wrist—the typical light bony outgrowths near the articulations, with destruction of cartilages and partly of epiphyses well seen in the first and fourth metacarpo-phalangeal joints. These appearances differ markedly from the bone changes in chronic gout, where parts of the bones are cut off sharply as if by a gouge. The thumb is dislocated from the metacarpal bone and its metacarpo-phalangeal joint is disorganised. The styloid process of the ulna is hypertrophied (it is tender to pressure). The wrist bones generally are obscured by effused material. The figure is a good specimen of the condition of bone met with in rheumatoid or, as it is nowadays more commonly called, “osteo-” arthritis, while the typical fusiform thickening of the fingers in that disease is particularly well shown.